

Richardson (M.H.)

ACUTE ABDOMINAL SYMPTOMS

Demanding Immediate Operative Interference.

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ACUTE ABDOMINAL SYMPTOMS DEMANDING IMMEDIATE OPERATIVE INTERFERENCE.¹

BY MAURICE H. RICHARDSON, M.D.

I HAVE selected this subject for the purpose of inviting discussion upon a point about which there is a great diversity of opinion among medical men, — under what circumstances is immediate laparotomy imperative; what symptoms suddenly appearing in persons previously healthy indicate lesions almost always fatal if unrelieved? I am aware that it is extremely difficult, if not impossible, so to formulate a "symptom complex" that the best manner of proceeding will be clear in all cases. I am convinced, however, by the results of a large experience that there is no more important field in surgery for investigation at the present time. During the year 1891, in a total of three hundred operations in hospital and private practice, by far the largest number of deaths were caused by peritonitis. In the present year the deaths from the same cause have outnumbered the deaths from all other causes combined in the proportion of at least three to one. This is true if I exclude those cases of peritonitis which could not have been prevented or relieved by operation. In the following cases I have included only those in which the question of operation was seriously considered. In most the diagnosis has been made certain either by the operation or the autopsy. No case has been included, nor will any be discussed in this paper in which there was known to be any previously-existing abdominal disease. In other words, I

¹ Read before the Suffolk District Medical Society, October 29 1892.



offer for your consideration only those cases in which the very alarming and almost invariably fatal symptoms have appeared without warning or apparent cause in persons previously healthy, and in a very large number of which by immediate operation a fatal termination might have been prevented. I shall exclude cases of gun-shot wounds and stabs, because there is no great difference of opinion at the present time as to the necessity of exploration in both of these accidents. I shall include, however, those cases of blows and injuries to the abdomen in which there is no external evidence of violence.

The pathological conditions giving rise to alarming symptoms are, in the order of frequency, septic extravasations, hæmorrhage and acute obstructions. Extravasations from perforation of the vermiform appendix very much exceed in number those from all other causes combined. Acute obstructions from all causes, — twists, invaginations, bands, etc., — do not compare in frequency with peritoneal inflammations from perforative appendicitis. Hæmorrhages into the abdominal cavity from extra-uterine pregnancies, intestinal ulcers, and violence, with those from exceptional causes, make altogether a not infrequent cause of violent symptoms. In addition to the more common causes of septic extravasations, we may have perforation of intestinal ulcers, rupture of gall or urinary bladder, and rupture of the bowel from violence. Whatever may have been the cause of urgent symptoms, it is evident that in the first variety of cases — septic extravasation — the patient's life is in imminent danger, and that hours or even minutes are of the greatest importance. The invasion of the peritoneal cavity by septic fluids must differ materially from conditions where there is no septic element, such as obstruction and hæmorrhage, and the difference becomes well marked in the course

of the disease. Yet in the initial signs of the disaster there is so great a similarity, that it will be found very difficult to make a diagnosis in the early hours of the disease. It should not be forgotten, however, that we are not to discuss diagnosis of early fatal conditions, but those symptoms by which we are to recognize the necessity of instant exploration, leaving the diagnosis and its appropriate suggestions until the abdominal cavity has been opened.

A glance at the table inserted will convince any one that the mortality is appalling. With the exception of the cases of hæmorrhage and a few cases of appendicitis, the result has been death in every case. The same fatal ending would have followed in all if relief had not been found in comparatively early exploration. The most frequent cause of death has been septic peritonitis. In the rarer forms of acute disease the mortality has been 100 per cent. Yet even in these conditions early interference offers the great chance for relief. Acute obstructions, twists, invaginations, and bands, are almost invariably fatal, yet there is no condition admitting more certain relief if relief is at hand in time. The slow extravasations of appendicitis, even in such cases as are here given, at times are followed by recovery if left to themselves; a spreading peritonitis may become arrested; but in those other appalling conditions of which I am able to bring a few instances, there is practically no hope except in much earlier interference than I have ever been able to give.

In every case pain of one kind or another has been the initial symptom. It has been of such nature as to call for immediate attention and treatment. It has been general at first, and soon localized, or localized from the outset. Almost invariably it has been accompanied by tenderness, general or localized. Vomiting has been present in most cases, appearing either with

the onset of the pain or soon after. It has generally persisted till the end, though at times it has ceased. In some cases it has been absent, even in the gravest lesions. Its occasional absence, therefore, should not be looked upon too favorably. Local signs of serious trouble may become developed when there is an attempt on the part of nature to establish a localized peritonitis, but in the cases of spreading infection there is seldom anything more than a general distention and tenderness. Extensive extravasations, may cause percussion dulness, especially in the flanks or the pelvis. Distention in extensive lesions appears very early, even in the first few hours, and is a symptom of the greatest significance. Constipation added to the existing symptoms, makes the diagnosis quite evident, but the prognosis is by this time very bad. Constitutional symptoms of rise in pulse and temperature are not constant, though generally present. A high pulse is much more grave than a high temperature. These symptoms serve to indicate septic conditions, and throw little light on the diagnosis. In perforations with sepsis, we have pain, vomiting, distention, constipation, and constitutional symptoms with or without local signs; in early obstructive conditions the same without constitutional symptoms; while in hæmorrhage we have only pain, with evidence of exsanguination.

The most important, because the earliest symptom, therefore, is pain. The character of the pain is of the greatest importance. If it is sudden, persistent, severe; if general at first and soon localized; if it alarms the patient; and, finally, if it is accompanied by vomiting, there is good reason for anxiety. The pain described to me so many times is not the pain of an intestinal cramp; it is not described as that of a colic with diarrhoea. It is absurd to say that one will often be misled by such evidence. This pain is a symptom

of the greatest import, and about which neither the patient nor the physician is often mistaken. When accompanied by vomiting or shock or other serious symptoms, exploration is not only justifiable but imperative.

In considering the dangers of useless exploration, we have only to refer to the statistics of normal ovariectomies and similar operations. The mortality must be less where nothing is done beyond opening the abdomen. It will not be necessary often to make an extensive exploration. A very small cut will show at once whether there is any serious trouble. Hæmorrhage will show itself at once, and so will fæcal extravasation. Twists, intussusceptions, strangulations will be apparent immediately. If there is cause for investigation the operation will not have been useless, and if not the harm will be slight. I say this, believing fully that useless and hasty operations are to be condemned, and that no abdominal exploration is without danger; but the danger will be very slight in the hands of an experienced surgeon, and the number of useless explorations extremely small.

The fearful mortality in the cases of appendicitis depends upon the fact that they have been selected from 120 cases of all kinds, only those having been used in which the symptoms were of the fulminating variety, and in which a fatal ending could have been prevented only by very early operation. That the operation was not responsible, is shown by the large number of deaths under precisely similar conditions, where no attempt had been made to operate. That there were no recoveries in the cases of obstruction and fæcal extravasations from rupture of the bowel is not surprising in view of the fact that there was already a general peritonitis in each case in addition to the primary lesion. The brilliant results seen in hæmorrhage,

even after forty-eight hours' delay, are in marked contrast, and show the urgent need of early attempts to eliminate the poisonous element in cases necessarily septic.

It is undoubtedly true that occasionally a patient with symptoms suggesting serious abdominal lesions where none exist will undergo an unnecessary risk. The number of such useless explorations in the hands of experts will be very small. In my own experience I have opened the abdomen but once without finding one of the formidable lesions enumerated in my table. In that case a girl of thirteen began to complain of pain in right iliac fossa Sunday evening. Vomiting began Tuesday night. Wednesday the temperature was 100.2° , and the pulse 88. There was dulness in the right lower quadrant, with tenderness and resistance. On opening the abdomen nothing was found abnormal, except a slightly swollen appendix containing an opaque, thin fluid. I removed the appendix, and the child made a good recovery. The specimen looked before removal precisely like those appendices I have seen excised in the intervals of recurrent attacks. I have never seen an unnecessary exploration in acute abdominal disease in the hands of my colleagues. I think, therefore, that it may be said with truth that in the hands of experienced physicians and surgeons very few useless operations are likely to be performed.

Yet we must keep in mind that thus far we have had to deal with cases where the symptoms have been so pronounced that the surgeon's duty has been conspicuously plain. It seems to me fair to affirm that the course would not have been so evident in many of the cases during the first twenty-four hours of the disease, — at the time when operation to be successful should have been performed. The alarming nature

of the lesion, however, would have been suggested, and a serious indication of such conditions as we are discussing, is sufficient evidence for exploration. If we are to wait for more complete information, and must make a diagnosis before operation, I maintain that we might as well give up all idea of curing the patient by surgical art, except in such rare instances that a favorable issue will be looked upon as a most remarkable event.

I freely admit that there are many cases in which most alarming symptoms rapidly subside, which conditions may be cited in opposition to early interference. I have seen many such cases, where I have considered seriously the question of opening the abdomen. That I have not done so shows at least that there has been something in the case differing so materially from those cited above that I have been willing to take the responsibility of delay.

In the 43 cases herewith tabulated, at a very conservative estimate, thirty lives would have been saved by early operations. Exploration in the first few hours of the attack in all cases presenting similar symptoms may be unnecessary in a small proportion of cases; but taking them all together, the necessary and the useless, no man would seriously contend that there could possibly be any such mortality as I have shown. In a hundred cases the harm done by immediate exploration in all cases of sudden acute pain with vomiting and shock would be infinitely small compared with the great good that would result from surgical treatment in the first twelve hours of such symptoms as I have detailed.

DISCUSSION.

DR. CHEEVER: I have not much to say, but I might contribute a few cases to this list. They illustrate two

different points, and both occurred to me in the present month.

The first case comes under the class of unnecessary explorations. The patient was a woman of middle age, taken with acute vomiting and intense pain in the abdomen on the morning of one day, which persisted all day. In the evening the attending physician sent her to the City Hospital. A message was sent by telephone that in his opinion it was a case of appendicitis which demanded immediate interference. I was sent for and saw her; and the symptoms appeared to be quite grave. She had a high temperature, rapid pulse, somewhat distended abdomen, tenderness limited to the right side, and an obscure feeling of fulness there. Inasmuch, however, as the symptoms had only persisted about twelve hours, I felt reluctant to interfere, and ventured to wait until the next day. The next forenoon, thirty hours after the first access of the symptoms, there was no apparent relief except that the vomiting had somewhat ceased. This vomiting when I saw her was wholly bilious. The other symptoms were as acute if not more so. There evidently had been no relief. The tenderness in the right flank was more marked, the same obscure feeling of fulness there, and pulse and temperature kept up. It did not seem to me justifiable to wait any longer, and I had her etherized, made the usual incision and on opening the abdomen I found absolutely nothing to justify interference. The cæcum and appendix were perfectly healthy, not a shadow of peritonitis. There was some fulness of the gall-bladder. No gall-stones could be felt, and there was nothing, it seemed to me, which could have required an operation. Fortunately, owing to the safety of antisepsis, the wound healed, and she made a perfect recovery in the course of about a fortnight.

There was a case where the symptoms were severe, in which I endeavored to pursue a somewhat cautious and conservative course and yet one in which I was entirely mistaken in the diagnosis. On the other hand, a few days afterwards I was sent for to see a man who was brought to the hospital with the following history: He had been ailing three weeks, but still kept about his business, which was very laborious, going about with an ice-cart and handling heavy weights. He was a strong young man, from Maine, of temperate habits; and this sickness, he said, came on with pain in the abdomen which persisted three weeks, during which time he kept about, but for the last three days he was obliged to give up his work. He had not much temperature. He had not a high pulse at all. He looked, however, pretty sick. On examining his abdomen, there was found a fluctuating tumor on the left of the median line, simulating a distended bladder. He was etherized, the catheter passed, a moderate amount of clear urine drawn off, and the tumor not affected at all. The aspirator was put into the sac and a small quantity of very offensive pus withdrawn. The case being decided to be one of abscess, the ether was kept up and incisions were made until the sac was reached and opened, and a pint of very offensive semi-fæcal pus was evacuated, followed by discharge of fæces. The peritoneal cavity had not been wholly walled off, and was exposed to infection; it was packed with gauze, large drainage-tubes put in, and the cavity persistently washed out. He is in process of making an excellent recovery. A small fæcal fistula still persists, but well-formed, large stools are passing every second or third day by the rectum. I mention this to show the slightness of symptoms which existed after perforation of the intestine. The patient continued to work for three weeks. He had accumulated over a

pint of pus and faecal matter in the abdomen without excessive acute symptoms.

These cases are in extreme contrast. I have seen a good many cases in which I have been in doubt as to the gravity of the symptoms of appendicitis and in which the symptoms have subsided.

Three other cases came to the hospital in which the symptoms were watched carefully a day or two, and no operation was necessary.

These cases may throw some additional light on the subject. We all recognize cases where operations do a great deal of good and would not desist from making them; but the difficulty of making the diagnosis is enhanced more and more in all the cases I see.

DR. E. W. CUSHING: We ought to thank Dr. Richardson for this paper. For my part I fully agree with his conclusions, and I am glad we have such a man among us who is ready to go in so early. I had a little appendicitis once myself; and I am sure if I should have it again I should want something done. The more I see and the more I learn of abdominal work the more I believe the time to interfere is early, and in careful hands there is very little hurt done by unnecessary operation. In Dr. Cheever's case the woman was laid up a fortnight to be sure, but in ten such cases it would be found that five or six lives would have been saved and none lost by interference. Especially in appendicitis I think a great deal of damage is done by waiting too long. The time to interfere is early, and no one can tell which is going to be a fatal case in the beginning. I saw a case the other day where I operated on the third day after the symptoms came on. Pulse not over 100, temperature normal; and the only thing which seemed really to justify operation was general principles and a certain bad look about the face—a pinched look. The man had a

sloughing appendix, and the abdomen was full of thin, foul pus, which was washed out; and he did well for a day, yet the next day he died. I fully believe if that case had been operated on thirty-six hours earlier it would have been saved. I have yet to find the man who can say beforehand which case of appendicitis is going to be fatal and which is not. The apparently light cases often die, and the stormy cases sometimes get well. I think Dr. Richardson is to be congratulated on the courage of his convictions and the brilliancy of his surgery.

DR. RICHARDSON: I did not intend to discuss appendicitis, except the earliest symptoms of the fulminating cases. My experience, especially of late, in intestinal obstruction, and in appendicitis has been very disastrous. During August I saw in consultation a case nearly every other day. In many of these I was called on the fourth, fifth, or sixth day, or even later, and frequently was obliged to operate to give the patient what we considered a very slight chance of getting well. Many of these delayed cases died in two or three days, although occasionally one recovered in spite of the most unfavorable prognosis. Such an experience is very unfortunate, and, considering the fact that immediate operation, or operation within the first twenty-four or forty-eight hours would probably have been followed by recovery, deplorable.

In operating on the appendix in recurrent cases, I have had no experience whatever. I believe there have been several fatal cases not as yet reported. In recurrent disease of the appendix, as in acute inflammation, I do not advocate indiscriminate operating. I do not believe that the abdomen should be opened in all cases of appendicitis; but I believe that we can tell in the first twenty-four or forty-eight hours the grave ones,—and this is all that is necessary. If we find

in the first twenty-four or forty-eight hours a gangrene of the appendix, with perforation, the operation is warrantable. If it is proper to operate on the fallopian tube in a state of inflammation, excision of a gangrenous appendix is vastly more urgent and necessary. The only point in this paper that I wished to discuss was under what circumstances, and in the presence of what symptoms in the very beginning of these cases is operation imperative. At a discussion of acute intestinal obstruction before the Massachusetts Medical Society this was the main point; and I made some remarks upon the subject at that time which embodied my views. The pathological condition found in most of the cases reported to-night admitted of cure had the remedy been applied soon enough. The intestinal extravasations were not necessarily fatal. The mortality in resection of the intestine is small; and, since applying my method of gauze drainage to the line of suture, I have not had any bad results. In twists and invaginations patients might have recovered. Now if we had operated in the first twenty-four hours in all the cases reported to-night, and if, in addition, we had operated upon as many more cases with similar symptoms but had found nothing, no one would assert that such a mortality could possibly have followed. If we could operate upon a hundred cases presenting acute abdominal symptoms — pain, tenderness, distension, vomiting, nausea — we might find that the abdomen had been opened unnecessarily in a small number of cases; but the mortality from those unnecessary operations, I maintain, would be very small. The number of cases saved in a hundred, by such early exploration, would be very large indeed. It is not necessary to make an extensive exploration to find out whether there is anything wrong or not. A cut down to the peritoneum usually gives evidence

sufficient to justify further investigation. In appendix cases the abdominal walls are generally oedematous, more or less, especially as we get to the peritoneum. In cases of hæmorrhage the peritoneum presents a dark discoloration, which I have noticed in every case. This appearance justifies further investigations, and is always followed by the escape of blood when the membrane is cut. In faecal extravasations a small nick in the peritoneum through a very small incision will show whether there is any serious trouble going on or not. There will be serum, or pus, or other abnormal condition in every such case. In twists and invaginations a similar condition will be found. In rare instances there will be nothing found on opening the abdomen. A large incision, and a thorough investigation of the whole alimentary tract and all the abdominal viscera will then be necessary, and the danger correspondingly increased. If in grave doubt as to the existence of any serious trouble, the slight exploration which I have indicated adds an almost infinitely small risk, and is to be encouraged, even if a more extensive exploration is not made.

DR. CHEEVER: I should like to ask Dr. Richardson whether in advanced cases where the walling off of an abscess has formed and he has made his opening and found and given exit to pus, he thinks that it is best always then to search for the appendix?

DR. RICHARDSON: Some time ago I opened a walled-off abscess in a little girl in Haverhill without searching for the appendix. She died in three days of a general peritonitis. I felt sorry that I had not taken out the appendix in this case. Some days later I operated on a similar case in Ashby, isolated, separated and removed the appendix. This little girl died of shock in the course of twelve hours. I do not believe that it is wise, or justifiable to disturb the ab-

cess cavity of a localized peritonitis; and I should not attempt to separate, or remove the appendix unless it presented, and was very easily accessible.

DR. CUSHING : What are the symptoms or want of symptoms which will justify the surgeon in not operating when the diagnosis of appendicitis is made? How will he know that a case mild now is not going to be a fatal one, and when he comes to operate the day after, that it may not be too late?

DR. RICHARDSON : The only answer I can give is that under certain conditions described, and from the general appearance of the patient and the local signs it seems to me probable that a case is going to do well. It is difficult to lay down the symptoms by which you are to be guided. I have tried to do so in this paper. The most valuable aid is that of experience. I have generally been right in advising delay, or in advising operation. Once I have opened the abdomen where the diagnosis of appendicitis had been made and nothing serious was found. On the other hand, I have delayed once or twice and have been sorry for it; but in the majority of cases of appendicitis, of which now I have had about a hundred and twenty, I have had no reason to regret either early operation or delay. If any general rule is to be laid down, it certainly is that an operation should be performed in every case. That, in my opinion, is a safer rule than that we should delay in every case. With our present knowledge the safest course of all is to judge each case by itself, operating or not, according to circumstances.

CASES OF PERITONITIS FROM PERFORATIVE APPENDICITIS.

No.	Name.	Date.	Sex	Age.	First Symptoms.	Constitutional Symptoms.	Local Symptoms.	Diagnosis.	Operation.	Result.	Autopsy.	Remarks.
1	J. K.	July, '91.	M.	11	Pain, vomiting.	T. 102. P. 135.	Dulness, tenderness, tumor right lower quadrant.	Appendicitis, perforation.	Third day, drainage.	Recovery.	.....	.....
2	L. P.	Sept. '91.	M.	4	Pain, vomiting.	T. 102. P. 140.	Distention, tenderness right quadrant.	Appendicitis, perforation.	Third day, excision of gangrenous appendix.	Recovery.	.....	General cavity of abdomen opened.
3	A. T. L.	Oct. '91.	F.	14	Pain, vomiting.	T. 100. P. 128.	Dulness, distention, tenderness right iliac fossa.	Perforation of appendix.	Fourth day, excision of gangrenous appendix.	Recovery.	.....	General abdominal infection.
4	T. J. D.	May, '92.	M.	18	Pain, no vomiting.	T. 101.5. P. 96.	Distention, general tenderness.	Perforation of appendix.	Fourth day after perforation excision of appendix.	Recovery.	.....	General peritonitis.
5	F. N. C.	July, '92.	M.	10	Pain, no vomiting.	T. 100. P. 120.	Dulness and tenderness, right iliac fossa.	Perforation of appendix.	Fourth day, excision of appendix.	Recovery.	.....	Incipient general peritonitis.
6	J. E. P.	Aug. '92.	M.	17	Pain, paroxysmal. No vomiting.	T. 101. P. 96.	Dulness and tenderness over appendix.	Perforation of appendix.	Third day, appendix excised.	Recovery.	.....	Spreading peritonitis.
7	O. G.	May, '89.	M.	28	Sharp pain in r. il. foss. during mild attack of appen'citis.	Collapse.	General tenderness, distention.	Perforation of appendix.	Second day of general peritonitis, faecal abscess.	Death same day.	None.	Spreading peritonitis from ruptured appendicular abscess.
8	G. W. S.	Dec. '89.	M.	29	Acute pain in left hypochondrium. Vomiting, becoming stereotyped.	.....	General distention and resistance in right hypochondrium.	Acute intestinal obstruction.	Fourth day, general peritonitis, no cause found.	Death in six hours.	Perforated and gangrenous appendix.	Local symptoms present opposite side of abdomen.
9	A. F.	Dec. '89.	M.	18	Sharp pain, contin. free vomiting.	T. 102.8. P. 132.	Distention, tenderness, dulness, right iliac fossa.	Perforative appendicitis.	Third day, drainage.	Death in several days.	Gangrenous appendix.	General peritonitis.
10	H. H.	Feb. '91.	M.	12	Acute pain over abdomen during mild attack of appendicitis.	P. 144.	General distention and tenderness.	Appendicitis, spreading peritonitis.	Second day of relapse.	Death in one day.	None.	General abdominal invasion by rupture of appendicular abscess.
11	C. R.	May, '91.	M.	24	Severe pain in right iliac fossa. Vomiting.	T. 103. P. 120.	Distention, tenderness general.	Appendicitis, general peritonitis.	Third day, drainage.	Death in one day.	Perforated and gangrenous appendix.	General peritonitis.
12	G. B. O.	Aug. '91.	M.	30	Pain in right iliac fossa. Vomiting.	.....	Dull, tender, resistant over appendix.	Appendicitis.	Fourth day, drainage.	Death in five hours.	Perforation of appendix, general peritonitis.	Extensive gangrene of perinephritic tissues.
13	J. J. H.	Oct. '91.	M.	20	Pain, vomiting.	T. 103. P. 100.	Dull, tender, resistant in right iliac fossa.	Appendicitis.	Drainage.	Death, same day.	None.	General peritonitis.
14	C. G.	May, '92.	M.	13	Pain and vomiting.	T. 101. P. 120.	General tenderness, but more marked over appendix.	Appendicitis with abscess.	Fourth day, drainage.	Death, same day.	None.	General peritonitis.
15	C. R. G.	July, '92.	M.	34	Pain in epigastrium and r. iliac fossa. Vomiting.	.....	General distention.	Appendicitis, general peritonitis.	Third day, excision of appendix.	Death on second day.	None.	General peritonitis.
16	T. F. K.	July, '92.	M.	30	Pain, r. iliac fossa, becoming general.	Collapse.	General distention, no local signs.	Perforation of appendix and general peritonitis.	Fourth day, excision of appendix and drainage.	Death in four hours.	None.	.....
17	J. W. P.	July, '92.	M.	28	Severe pain, vomiting.	Violent. P. 116. T. 103.	Tenderness over appendix, general distention, dulness.	Appendicitis and general peritonitis.	Third day, excision of appendix and drainage.	Death, three hours.	None.	General peritonitis.
18	E. G. F.	Aug. '92.	F.	15	"Awful pain" in r. iliac fossa. Vomiting.	T. 102. P. 114, 3d day.	Dulness, tenderness in right iliac fossa.	Appendicitis with abscess.	Fifth day, drainage.	Death, three days.	General peritonitis.	Seen by me on third day, advised delay. P. 120 on fifth day.
19	C. P.	Sept. '92.	M.	46	Pain through bowels. Vomiting.	T. 101. P. 120. Gen. condi. bad.	Distention, no local signs.	Appendicitis and acute obstruction.	Fourth day, excision of gangrenous appendix.	Death, twenty-four hours.	None.	General peritonitis.
20	A. H. B.	Oct. '92.	M.	55	Pain, vomiting, followed by constipation.	P. 100. T. 100.8. Gen. condi. bad.	General distention, general tenderness, hernia.	Internal strangulation or appendicitis.	Fifth day, excision of appendix.	Death, third day.	None.	General peritonitis.
21	H. B.	Nov. '92.	M.	40	Violent pain, vomiting.	P. 135. T. 101.	General distention, dulness and tenderness over appendix.	Perforation of appendix with general peritonitis.	Second day, excision of appendix.	Death, sixth day.	None.	General peritonitis.
22	H. K.	Aug. '87.	M.	50	Pain, vomiting.	Collapse.	General distention and tenderness, no local signs.	Acute obstruction.	None.	Death, third day.	Gangrenous appendicitis, general peritonitis.	.....
23	E. M.	Feb. '88.	M.	26	Pain.	Collapse. P. 140 on 7th day.	General distention, no local signs.	Appendicitis, general peritonitis.	None.	One hour after visit.	Gangrenous appendix.	General peritonitis.
24	J. P. H.	Mar. '90.	M.	21	Pain, vomiting.	Collapse. P. 156, T. 97, 6th day.	General distention and tenderness.	Appendicitis, general peritonitis.	None.	Sixth day.	None.	Died shortly after my visit.
25	F. B. M.	July, '90.	M.	27	Pain, vomiting.	Collapse, 2d day. P. 176. Dying.	General distention and tenderness.	Appendicitis, general peritonitis.	None.	Second day.	Gangrenous appendix, general peritonitis.	Died shortly after my visit.
26	H. P.	Oct. '90.	M.	13	Pain, vomiting.	Collapse, 5th day. Dying.	General distention and tenderness.	Appendicitis, general peritonitis.	None.	Fifth day.	.....	.....
27	W. W. B.	Aug. '92.	M.	18	Pain, vomiting.	Collapse, 4th day. dying. P. 170.	General distention and tenderness, no local signs.	Appendicitis, or internal strangulation.	None.	Fourth day.	Gangrenous appendix, general peritonitis.	Died after taking a few breaths of ether.
28	S. B., Jr.	Oct. '92.	M.	13	Pain, vomiting.	T. 102. P. 130. Collapse.	General distention and tenderness, dull over right iliac fossa.	Perforative appendicitis.	Sixth day, drainage.	Sixth day, seven hours after operation.	Gangrenous appendicitis, general peritonitis.	Delay of two days in getting to the patient in Northern Maine.

INTUSSUSCEPTION, INTERNAL STRANGULATION, ETC.

29	C. P.	Jan. '92.	M.	52	Pain in abdomen, paroxysmal, occasional vomiting, bloody stools.	T. 97.2. P. 60.	Resistance in left.	Intussusception.	Reduction and enterotomy for tumor of cæcum, third day.	Death in two days.	None.	.....
30	L. H. A.		M.	50	Slight pain first day, violent afterwards, vomiting.	Collapse.	Distention, resistant coils in left hypochondrium.	Volvulus or acute obstruction.	Exploratory, fourth day.	Death in a few hours.	Thrombosis, portal vein.	Condition incurable.
31	S. B. H.	May, '92.	F.	54	Terrible agony in abdomen, constipation.	T. 98.6. P. 120.	General distention and tenderness, dulness in right iliac.	Appendicitis or obstruction.	Third day, resection four feet gangrenous intestine.	Death in ten hours.	None.	Gangrene caused by a band.
32	....	1890.	F.	45	Pain, vomiting.	Urgent.	Distention and general tenderness.	Acute obstruction.	Band divided and obstruction relieved, suture of intestine.	Death in short time.	...	Shock and collapse, band resulted from ovariectomy.
33	J. V.	Dec. '91.	M.	39	Intense pain in epigastrium, first day, vomiting; second day, bloody stools.	T. 99.8. P. 108.	None.	Obscure, none made.	None advised.	Death, third day.	None permitted.	Intestinal obstruction or embolism considered probable condition.
34	J. B.	1891.	F.	39	Pain in lower abdomen 3d day after simple fracture of r. hip, vomiting.	Collapsed on 4th day.	Distention and tenderness, general.	None made.	None advised.	Death, fourth day.	None allowed.	Probably fat embolism, thrombosis, portal veins.
35	W. T. B.	1891.	M.	62	Distention of abdomen without pain.	T. 101. P. 130.	None except distention.	None made.	None advised.	Death, fifth day.	Fat embolism.	.....

CASES OF INTESTINAL EXTRAVASATION FROM OTHER CAUSES.

36	C. J. K.	Sept. '88.	F.	39	Sharp pain in epigastrium.	Rapidly rising pulse and temperature.	Distention, great tenderness in hypogastric and left iliac regions.	Spreading peritonitis, cause unknown.	Intestinal suture, artificial anus.	Death, sixth day.	Fresh extravasation.	Perforation of large ulcer of transverse colon. Previous health good.
37	O. A. T.	Feb. '89.	M.	48	Pain, no vomiting.	Collapse, 2d day.	General distention and tenderness.	Perforation of rectum from case-knife.	Abdominal section, suture of wound in rectum.	Death in a few hours.	None.	General paralytic.
38	J. G. S.	July, '92.	M.	48	Pain immediately after being kicked, vomiting constant.	T. normal to sub-normal. P. rising to 128 2d day.	General distention, dulness and tenderness right lower quadrant.	Appendicitis or ruptured intestine.	Intestinal suture for rupture of small intestine.	Death a few hours later.	General peritonitis from faecal extravasation.	Had also hernia; good previous health.
39	W. M.	Sept. '88.	M.	34	Sudden pain in epigastrium and to left, vomiting, blood.	T. 99. P. 96.	None.	Ulcer of stomach.	None advised.	Death in a few days, sudden.	Perforation of stomach ulcer and hemorrhage posterior wall.	Operative interference would not have prevented death, probably.

CASES OF ABDOMINAL HÆMORRHAGE.

40	J. P.	July, '88.	F.		Sudden severe pain, exsanguination.	None except shock.	Dulness in flanks.	Hæmorrhage from extra-uterine pregnancy.	Removal of fœtus and sac.	Recovery.	.....	.....
41	R. T.	June, '92.	F.	30	Pain, fainting, exsanguination.	Collapse, shock, dying after 1st hour.	None.	Ruptured ectopic gestation.	None possible.	Death, ten hours.	None.	.....
42	A. K.	July, '92.	F.	38	Sharp pain in hypogastrium.	None.	Dull flanks, mass at right of uterus.	Extra-uterine pregnancy.	Drainage, gauze packing.	Recovery.	.....	.....
43	K. C.	July, '92.	F.	26	Sudden sharp pain in epigastrium, blanched.	None.	Dull flanks, tenderness in lower right quadrant.	Extra-uterine pregnancy and rupture.	Ligation and drainage.	Recovery.		

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